Overlapping Prefix

The Overlapping prefix feature supports Endpoint Identifier (EID) registration by two sites where the EID prefix from one LISP site is a subset of the EID prefix from another LISP site.

Prerequisites for Overlapping Prefix

- Reliable registration must be established between the xTR (performs functions of both Egress Tunnel Router and Ingress Tunnel Router components) and map server/map resolver (MS/MR).

Information About Overlapping Prefix

Endpoint ID (EID)

An EID value for IPv4 is 32 bit and EID value for IPv6 is 128-bit. EIDs are used in the source and destination address fields of the first LISP header of a packet.

EID-Prefix

An EID-Prefix is a power-of-two blocks of EIDs allocated to a LISP site by an address allocation authority.

Map Server/Map Resolver (MS/MR)

MS and MR functions are implemented on the same device, which is referred to as an MS/MR device.

How to Configure Overlapping Prefix

Configuring Overlapping Prefix

Configure EID-prefix with "accept-more-specifies" keyword to allow MS to accept registration of more specific prefix.

```
router lisp
 site site3
  authentication-key cisco
  eid-prefix 172.16.0.0/8 accept-more-specifics
  exit
```

Register 3.0.0.0/8 with MS.

```
router lisp
 database-mapping 172.16.0.0/8 10.0.0.3 priority 1 weight 100
```

Register 3.1.0.0/16 with MS, which is more specific and overlap with 3.0.0.0/8 prefix registered from xTR3.

```
router lisp
 database-mapping 192.168.0.0/16 10.0.0.4 priority 1 weight 100
 database-mapping 192.0.2.0/8 10.0.0.4 priority 1 weight 100
```

Verifying Overlapping Prefix

Perform this task to verify the Overlapping Prefix feature in the LISP network. In this example, there are four routers: MSMR, xTR2, xTR3, and xTR4. Each router has an interface connection in the same subnet (RLOC space) 10.0.0.0/24. The following are the IP addresses of the routers:

Router	IP Address
MSMR	10.0.0.1
xTR2	10.0.0.2
xTR3	10.0.0.3
xTR4	10.0.0.4

MS/MR Output:

```
Device# show lisp site

LISP Site Registration Information
* = Some locators are down or unreachable
# = Some registrations are sourced by reliable transport

Site Name      Last      Up     Who Last             Inst     EID Prefix
```

```
                Register         Registered          ID
site2           00:15:08  yes#   10.0.0.2                    2.0.0.0/8
site3           00:15:05  yes#   10.0.0.3                    3.0.0.0/8
                00:15:01  yes#   10.0.0.4                    3.1.0.0/16
site4           00:15:01  yes#   10.0.0.4                    4.0.0.0/8
```

xTR1 Output:

```
Device# show ip lisp map-cache

LISP IPv4 Mapping Cache for EID-table default (IID 0), 3 entries

0.0.0.0/0,  uptime: 00:18:05, expires: never, via static send map-request
  Negative cache entry, action: send-map-request
3.0.0.0/8,  uptime: 00:00:16, expires: 23:59:43, via map-reply, complete
  Locator   Uptime    State      Pri/Wgt
  10.0.0.3 00:00:16  up           1/100
3.1.0.0/16, uptime: 00:00:08, expires: 23:59:51, via map-reply, complete
  Locator   Uptime    State      Pri/Wgt
  10.0.0.4  00:00:08  up           1/100
```

xTR2 Output:

```
Device# show ip lisp map-cache

LISP IPv4 Mapping Cache for EID-table default (IID 0), 3 entries

0.0.0.0/0, uptime: 00:18:44, expires: never, via static send map-request
  Negative cache entry, action: send-map-request
2.0.0.0/8, uptime: 00:00:57, expires: 23:59:02, via map-reply, complete
  Locator   Uptime    State      Pri/Wgt
  10.0.0.2  00:00:57  up           1/100
3.1.0.0/16, uptime: 00:18:40, expires: 23:42:12, via map-reply, self, complete
  Locator   Uptime    State      Pri/Wgt
  10.0.0.4  00:17:47  up           1/100

Device# show ip lisp away

LISP Away Table for router lisp 0 (default) IID 0
Entries: 1

Prefix                                  Producer
3.1.0.0/16                              mapping-notification
```

xTR3 Output:

```
Device# show ip lisp map-cache

LISP IPv4 Mapping Cache for EID-table default (IID 0), 2 entries

0.0.0.0/0, uptime: 00:19:26, expires: never, via static send map-request
  Negative cache entry, action: send-map-request
2.0.0.0/8, uptime: 00:01:35, expires: 23:58:24, via map-reply, complete
  Locator   Uptime    State      Pri/Wgt
  10.0.0.2  00:01:35  up           1/100

Device# show ip lisp away

LISP Away Table for router lisp 0 (default) IID 0
Entries: 0
```

Additional References for Overlapping Prefix

Related Documents

Document Title	Location
Cisco IOS commands	Cisco IOS Master Command List, All Releases

Document Title	Location
LISP commands	Cisco IOS IP Routing: LISP Command Reference

Standards and RFCs

Standard/RFC	Title
RFC 6830	*The Locator/ID Separation Protocol (LISP)*

Technical Assistance

Description	Link
The Cisco Support and Documentation website provides online resources to download documentation, software, and tools. Use these resources to install and configure the software and to troubleshoot and resolve technical issues with Cisco products and technologies. Access to most tools on the Cisco Support and Documentation website requires a Cisco.com user ID and password.	http://www.cisco.com/cisco/web/support/index.html

Feature Information for Overlapping Prefix

Table 1: Feature Information for Overlapping Prefix

Feature Name	Releases	Feature Information
Overlapping Prefix		The Overlapping prefix feature supports Endpoint Identifier (EID) registration by two sites where the EID prefix from one LISP site is a subset of the EID prefix from another LISP site. The following commands were modified: **authentication-key**, **database-mapping**, **router lisp**.